IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants: Stephan K. Barsun et al. Title: MULTI-HEAT SINK ARRANGEMENT Appl. No.: 10/803,399 Filing Date: 03/18/2004 Examiner: Pape, Zachary Art Unit: 2835	**CERTIFICATE OF FACSIMILE TRANSMISSION** I hereby certify that this paper is being facsimile transmitted to the **United States Patent and Trademark Office, Alexandria, Virginia** on the date below. *Todd A. Rathe* (Printed Name) (Signature) (Date of Deposit)

BRIEF ON APPEAL

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

1. **Real Party in Interest**

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249, Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware corporation, headquartered in Palo Alto, California. The general or managing partner of HPDC is HPQ Holdings, LLC.

2. **Related Appeals and Interferences**

There are no related appeals or interferences that will directly affect, be directly affected by, or have a bearing on the present appeal, that are known to Appellants or Appellants' patent representative.

3. **Status of Claims**

Claims 1-45 were originally pending in the application In response to a first substantive Office Action mailed on February 9, 2006, Appellants canceled claims 20-22, 24, 26 comes 38 and 45; amended Claims 1, 3-4, 7-8, 19 count 23, 25, 34, 37, 39 and 40 1-44; and added claims 46-47. In response to a final office action mailed on July 18, 2006, Appellants filed a request for continuing examination with a response that canceled claims for count 14 and 44; amended claims 1 come 15-17, 33, 34, 37, 39 and 43; and added claims 48-55. In response to an office action mailed on December 12, 2006, Appellants' canceled claims 48 and 55; amended claims 1, 17, 40, 41, 42 and 54; and added claims 56-57. This is an appeal from the Final Office Action mailed on April 27, 2007 in which claims 1-3, 5-13, 15, 16, 18, 19, 23, 25, 27-33, 43, 46, 47, 49, 50 and 57 were allowed; in which claims 52-56 were objected to; and in which claims 17, 34-37, 39-42, 51, 53 and 54 were rejected. The present appeal is directed to Claims 17, 34-37, 39-42, 51, 53 and 54, i.e., all of the presently pending claims that stand rejected in this application.

4. **Status of Amendments**

No amendments were filed after the Final Office Action.

5. Summary of Claimed Subject Matter

Claim 34 recites a processor module comprising:

a processor (52) configured to be connected to a circuit board, the processor having a first heat transfer surface (58) (page 5, lines 16-22);

a power pod (32) electrically connected to the processor to supply power to the processor, the power pod having a second heat transfer surface (82) (page 4, lines 21-25; page 6, lines 17-29);

a first heat sink (34) overlapping the power pod and thermally coupled to the second heat transfer surface (page 4, lines 26-28); and

a second heat sink (36) thermally coupled to the first heat transfer surface, wherein the second heat sink extends at least partially across and over the first heat (page 4, lines 29-page 5, line 10).

Claim 35 depends from claim 34 and recites that the second heat sink (36) extends completely across the first heat sink (page 4, lines 29-page 5, line 10).

Claim 36 depends from claim 35 and recites that the second heat sink (36) extends on opposite sides of the first heat sink (34) (page 4, lines 29-page 5, line 10, line 28-page 10, line 4).

Claim 37 recites a multi-device heat sink module for being connected to a circuit board, the module comprising:

a power supply (32) (page 4, lines 21-25);

a processor (52) (page 5, lines 16-22);

a first means for dissipating heat emitted by the power supply while not substantially receiving heat from the processor (34) (page 4, lines 26-28); and

a second means for dissipating heat emitted by the processor(36), wherein the second means extends at least partially across and over the first means (page 4, lines 29-page 5, line 10, line 28-page 10, line 4).

Claim 39 recites a heat dissipating arrangement comprising:

a first heat emitting device (52) (page 5, lines 16-22);

a second heat emitting device (32) (page 4, lines 21-25); and

a first heat sink (36) having fins (104) thermally coupled to the first device, wherein the fins of the first heat sink overlap and extend opposite to opposite sides of the second device (32) (page 4, lines 29-page 5, line 10; page 9, line 28-page 10, line 4).

Claim 40 depends from claim 39 and recites a second heat sink (34) thermally coupled to the second device, wherein the fins (104) of the first heat sink (36) extends opposite to opposite sides of the second heat sink (32) (page 4, lines 29-page 5, line 10; page 9, line 28-page 10, line 4).Claim 41 recites a first heat sink (36) for use with a first heat emitting device (52), a second heat emitting device (32) and a second heat sink (36) thermally coupled to the second heat emitting device, the first heat sink comprising:

at least one heat dissipating structure (36) having fins configured to be thermally coupled to the first heat emitting device while extending at least partially around and opposite to opposite sides of the second heat sink (page 4, lines 29-page 5, line 10)..

Claim 42 recites a first heat sink (36) for use with a first heat emitting device (52), a second heat emitting device (32), and a second heat sink (34) thermally coupled to the second heat emitting device and having a plurality of fins (92), the first heat sink comprising:

at least one heat dissipating structure (36) configured to be thermally coupled to the first heat emitting device (52) while extending at least partially around and opposite to opposite sides of the plurality of fins (92) of the second heat sink (34) (page 4, lines 29-page 5, line 10; page 9, line 28-page 10, line 4).

Claim 54 depends from claim 41 and recites that the second heat sink (34) has fins (92) and wherein the at least one heat dissipating structure (36) having fins (104) is configured to extend at least partially around and opposite to opposite sides of the fins (92) of the second heat sink (34) (page 4, lines 29-page 5, line 10; page 9, line 28-page 10, line 4).

6. Grounds of Rejection to be Reviewed on Appeal

The issues on appeal are whether the Examiner erred in rejecting Claims 39 and 40 under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 5,396,403 (Patel); whether the Examiner erred in rejecting Claims 41-42 under 35

U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 6,356,448 (DiBene); and whether the Examiner erred in rejecting Claims 34-37, 39-40, 51 and 53-54 under 35 U.S.C. § 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of U.S. Patent No. 6,356,448 (DiBene).

7. Argument

I. Legal Standards

A. Law of Anticipation

Claims 39-42 have been rejected under 35 U.S.C. § 102(b), which states:

> A person shall be entitled to a patent unless –
>
> ...
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States,
>
> ....

Under Section 102, a claim is anticipated, i.e., rendered not novel, when a prior art reference discloses every limitation of the claim. In re Schreiber, 128 F.3rd 1473, 1477 (Fed. Cir.1997). Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." In re Mills, 916 F.2d 680, 682 (Fed. Cir. 1990). "Rejections under 35 U.S.C. § 102(a) are proper only when the claimed subject matter is identically disclosed or described in the prior art." In re Arklely, Eardley, and Long, 172 U.S.P.Q. 524, 526 (CCPA 1972).

Claim terms will be given their ordinary and accustomed meaning, unless there is "an express intent to impart a novel meaning to [the] claim [term]" by the patentee. York Prods., Inc. v. Cent. Tractor Farm & Family Ctr., 99 F.3d 1568, 1572 (Fed. Cir. 1996); Sage Prods. v. Devon Indus., Inc., 126 F.3d 1420, 1423 (Fed. Cir. 1997). The ordinary and accustomed meaning of a claim term is determined by reference to dictionaries, encyclopedias, and treatises available at the time of the patent. See Texas Digital Systems, Inc., 308 F.3d at 1203. Such references are

always available for claim construction purposes and are neither extrinsic nor intrinsic evidence. See Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202-03 (Fed. Cir. 2002).

In order to impart a specific meaning to a claim term, i.e., for the inventor to be her own lexicographer, such lexicography must appear "with reasonable clarity, deliberateness, and precision." In re Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994). However, intrinsic evidence may be consulted to determine the definite meaning of a claim term that is unclear. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1367 (Fed. Cir. 2002). A claim term may be redefined without any express statement of redefinition in the specification. Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001). "[A] claim term will not carry its ordinary meaning if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment" or "described a particular embodiment as important to the invention."

B. Law of Obviousness

Claims 34-37, 39 and 40, 51 and 50 3-54 are rejected under 35 U.S.C. § 103(a), which states:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The legal standards under 35 U.S.C. § 103(a) are well-settled. Obviousness under 35 U.S.C. § 103(a) involves four factual inquires: 1) the scope and content of the prior art; 2) the differences between the claims and the prior art; 3) the level of ordinary skill in the pertinent art; and 4) secondary considerations, if any, of nonobviousness. See Graham v. John Deere Co., 383 U.S. 1, 148 U.S.P.Q. 459 (1966).

In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. In re Piasecki, 745 F.2d 1468, 1471-72, 223 U.S.P.Q. 785, 787-88 (Fed. Cir. 1984). "[The Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." In re Fritch, 972 F.2d 1260, 1265, 23 U.S.P.Q. 2d 1780, 1783 (Fed. Cir. 1992).

As noted by the Federal Circuit, the "factual inquiry whether to combine references must be thorough and searching." McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 60 U.S.P.Q. 2d 1001 (Fed. Cir. 2001). Further, it "must be based on objective evidence of record." In re Lee, 277 F.3d 1338, 61 U.S.P.Q. 2d 1430 (Fed. Cir. 2002). The teaching or suggestion to make the claimed combination must be found in the prior art, and not in the applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q. 2d 1438 (Fed. Cir. 1991). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 U.S.P.Q. 2d 1430 (Fed. Cir. 1990). "It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to '[use] that which the inventor taught against its teacher.'" Lee (citing W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 312-13 (Fed. Cir. 1983)). Teaching away from the claimed invention is a strong indication of non-obviousness and an improper combination of references. U.S. v. Adams, 383 U.S. 39 (1966).

II. The Examiner's Rejection of Claims 39-40 under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 5,396,403 (Patel) Should Be Reversed Because Patel Does Not Disclose Every Limitation of Each of the Claims.

The claimed invention is not anticipated under § 102 unless each and every element of the claimed invention is found in the prior art. (Hydratech, Inc. v. Monochronal Antibodies, Inc., Fed. Cir. 1986). Accordingly, the rejection of these claims under 35 U.S.C. § 102(b) is improper and should be reversed.

A. Claim 39

Independent Claim 39 is directed to a heat dissipating arrangement including a first heat imaging device, a second heat imaging device in a first heat sink. The first heat sink has fins thermally coupled to the first device. The fins of the first heat sink overlap and extend opposite to opposite sides of the second device.

As noted in the previous response filed under March 12, 2007, Patel fails to disclose an arrangement having first and second heat emitting devices, wherein a first heat sink having fins thermally coupled to the first device overlap and extend opposite to opposite sides of the second device. In contrast, Figure 4 of Patel discloses either a first heat sink 75 or a second heat sink 83. The fins of heat sink 75 to not extend opposite to opposite sides of any heat emitting device. Likewise, the fins of heat sink 83 do not extend opposite to opposite sides of any heat emitting device.

In response to such points, the Examiner argues:

> As detailed in Fig 4, Patel clearly discloses a second device (67) with opposite sides, and further the first heat sink (75) extend opposite to the opposite sides as claimed (In that the fins extend horizontally, vertically, and into and out of the paper and therefore if one were to choose the opposite sides to be to opposite points on top of the device (67) than the fins would extend opposite to the points by extending into and out of the page).

(Final Office Action dated April 27, 2007, pages 10-11).

The Examiner's argument is without merit. Once again, claim 39 recites that the fins extend opposite to opposite sides of a heat emitting device. In other words, the heat emitting device is sandwiched between fins of a single heat emitting device.

The Examiner acknowledges that Figure 4 illustrates two heat sinks 75, 83, not one heat sink, in rejecting claim 40. The fins of heat sinks 75 clearly do not extend opposite to opposite sides of device 67. Likewise, the fins of heat sink 83 clearly do not extend opposite to opposite sides of device 67. One of ordinary skill in the art would never consider the fins of heat sink 75 to extend opposite to opposite sides of any of devices 63 or 67. Although the Examiner may be entitled to a reasonable broadest interpretation of the claims, in this particular instance, the Examiner's interpretation is unreasonable and does not comport with the plain meaning of the claim limitations. Accordingly, the rejection of claim 39 should be reversed.

B. Claim 40

Claim 40 depends from claim 39 and recites a second heat sink thermally coupled to the second device. The fins of the first heat sink extend opposite to opposite sides of the second heat sink. Thus, claim 40 additionally recites that the fins of the first heat sink not only sandwich the second device but also sandwich the second heat sink. An example of this is clearly shown in Figure 5 of the present application.

As pointed out in response filed March 12, 2007, Patel fails to disclose fins of a first heat sink that extend opposite to opposite side of a second heat sink. As shown by Figure 4 of Patel, fins a heat sink 75 do not extend opposite to opposite sides of heat sink 83. Likewise, fins of heat sink 83 do not extend opposite to opposite sides of heat sink 75.

In response to such points, the Examiner repeats in essence the same argument made above with respect to claim 39. Once again, One of ordinary skill in the art would never consider the fins of heat sink 75 to extend opposite to opposite sides of any of heat sink 83, or vice versa. Although the Examiner may be entitled to a reasonable broadest interpretation of the claims, in this particular instance, the Examiner's interpretation is unreasonable and does not comport with the plain

meaning of the claim limitations. Accordingly, the rejection of claim 40 should be reversed.

III. The Examiner's Rejection of Claims 41-42 under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 6,356,448 (DiBene) Should Be Reversed Because DiBene Does Not Disclose Every Limitation of Each of the Claims.

The claimed invention is not anticipated under § 102 unless each and every element of the claimed invention is found in the prior art. (Hydratech, Inc. v. Monochronal Antibodies, Inc., Fed. Cir. 1986). Accordingly, the rejection of these claims under 35 U.S.C. § 102(b) is improper and should be reversed.

A. Claim 41

Claim 41recites a first heat sink comprising a heat dissipating structure having fins configure to be thermally coupled to a first heat emitting device while extending at least partially around and opposite to opposite sides of a second heat sink which is coupled to a second heat emitting device.

As noted in the previous response filed under March 12, 2007, DiBene fails to disclose or suggest a heat sink having fins configure be thermally coupled to a first heat emitting device, wherein the fins extend at least partially around and opposite to opposite sides of a second heat sink thermally coupled to a second heat emitting device. In contrast, neither fins 144 nor the material between plated through holes 168 (characterized by the Examiner as fins) extend opposite to opposite sides of one another.

In response to such points, the Examiner argues:

> As detailed in Fig 1 the first heat sink (comprising 142, 44) extended lease partially around an opposite to opposite sides of the second heat sink (106, 126, 128, 158). The fins of the second heat sink extend horizontally, vertically and into and out of the page which, when taken in conjunction with to opposite sides of the heat sink, will extend opposite thereto.

(Final Office Action dated April 27, 2007, page11).

The Examiner's argument is without merit. Once again, claim 41 recites that the fins of a first heat sink extend opposite to opposite sides of a second heat sink. In other words, the second heat sink is sandwiched between fins of the first heat sink.

One of ordinary skill in the art would never consider the fins 144 of heat sink 142 to extend opposite to opposite sides of area 158 of printed circuit board 104 (characterized by the Examiner as the second heat sink). Then 144 clearly extend over and across area 158. However, fins 144 clearly do not extend opposite to opposite sides of area 168. Although the Examiner may be entitled to a reasonable broadest interpretation of the claims, in this particular instance, the Examiner's interpretation is unreasonable and does not comport with the plain meaning of the claim limitations. Accordingly, the rejection of claim 41 should be reversed.

B. Claim 42

Claim 42 recites a heat sink comprising at least one heat dissipating structure configured to be thermally coupled to a first heat emitting device while extending at least partially around and opposite to opposite sides of a plurality of fins of a second heat sink thermally coupled to a second heat emitting device.

As pointed out in response filed March 12, 2007, DiBene fails to disclose or suggest a heat displaying structure which extends at least partially around and opposite to opposite sides of fins associated with another heat sink. Heat sink 142 of DiBene does not extend at least partially around and opposite to opposite sides of the material between plated through holes 168 (characterized by the Examiner as fins).

In response to such points, the Examiner repeats in essence the same argument made above with respect to claim 41. Once again, One of ordinary skill in the art would never consider the fins 144 of heat sink 142 to extend opposite to opposite sides of the material between plated through holes 168 (characterized by the Examiner as fins), or vice versa. Although the Examiner may be entitled to a reasonable broadest interpretation of the claims, in this particular instance, the Examiner's interpretation is unreasonable and does not comport with the plain

meaning of the claim limitations. Accordingly, the rejection of claim 42 should be reversed.

IV. The Examiner's Rejection of Claims 34-37, 39-40, 51 and 53-54 under 35 U.S.C. § 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of U.S. Patent No. 6,356,448 (DiBene) Should be Reversed Because It Would Not Be Obvious to Modify Tanaka so As to Include Every Limitation of Each of the Claims.

A. Claim 34

Claim 34 recites a processor module which includes a first heat sink overlapping a power pod and a second heat sink extending at least partially across and over the first heat sink.

As pointed out by Appellants in the response filed March 12, 2007, neither AAPA nor DiBene, alone or in combination, disclose or suggest a processor module having a first heat sink that overlaps a power pod and a second heat sink that extends at least partially across and over the first heat sink. AAPA merely acknowledges the existence of a first heat sink that overlaps a power pod and a second heat sink connected to a processor. The Examiner acknowledges that AAPA is silent as to the second heat sink extending at least partially across and over the first heat sink. As a result, the Examiner attempts to additionally rely upon DiBene.

However, DiBene does not satisfy the deficiencies AAPA. Like AAPA, DiBene also discloses a heat sink that overlaps a power pod and another heat sink connected to a processor. Nowhere does DiBene disclose or suggest that a heat sink that is connected to the processor should extend over the heat sink that extends over the power pod. In other words, nowhere does DiBene disclose that the material between plated through holes 168 (characterized by the Examiner as a heat sink) extends over heat sink 142 (the heat sink that extends over power pod 118).

In rejecting claim 34, the Examiner seems to overlook the specific limitations of what heat sink is extending across the other heat sink. In rejecting claim 34, the Examiner asserts, "DiBene teaches the conventionality of having a heat sink (142) extend at least partially across in other heat sink (comprising 106, 126, and 128)."

However, claim 34 does **not** simply state that one heat sink extends across another heat sink. Rather, claim 34 specifically recites that the heat sink that is thermally coupled to the heat transfer surface of the processor extends at least partially across and over the heat sink that overlaps and is thermally coupled to the power pod. The heat sink of DiBene that is thermally coupled to the processor (comprising 106, 126, and 128) clearly does not extend over the heat sink 142 that overlaps power pod 118.

In response to such points, the Examiner argues:

> The Examiner respectfully notes that was never the Examiner's position that DiBene teach the heat sink/power pod, heat sink/processor relationship as alleged in remarks. Rather, the Examiner simply used the DiBene reference to teach a second heat sink extending over a first heat sink. The relationship between the heat sink/power pod, heat sink/processor is addressed by AAPA.

(Final Office Action dated April 20 7, 2007, page 9).

However, this is not true. AAPA does NOT disclose a first heat sink (1) that is thermally coupled to be heat transfer surface of a processor AND (2) that extends at least partially across and over a second heat sink that overlaps and is thermally coupled to a power pod. Paragraph [0002] and [0003] of the present application, relied upon by the Examiner for his incorrect assertion, recite in full:

> [0002] To cool or dissipate heat from processors and power pods, many computer systems include heat sinks positioned adjacent the processor and the power pod. Such heat sinks are generally thermally conductive and have a large surface area for dissipating heat from the processor or from the power pod.
>
> [0003] In many computer systems, adequate cooling of the processor is difficult to achieve. Achieving adequate cooling of the processor is even more problematic in those systems where multiple electronic components, such as processors and dedicated power pods are crowded next to one another within the system. For example, in many computer systems, multiple processors are placed in series so that the processors and their respective heat sinks pre-heat the air flowing to the next processor and heat sink. In an attempt to increase

> cooling of the processor, some computer systems utilize the common heat sink base for both the processor and the power pod. Although the common base increases cooling of the processor, it requires the usage of a different heat sink for each different implementation, increasing supply chain costs. In addition, because power pods generate much less heat as compared to the processor, this attempted solution often results in the processor actually heating the power pod. In another attempt to increase cooling of the processor, some computer systems utilize active heat sinks or turbo coolers which are equipped with fans. This solution increases the cost and reduces the reliability of the system.

Nowhere do these two paragraphs taken from the present application ever disclose a first heat sink (1) that is thermally coupled to be heat transfer surface of a processor AND (2) that extends at least partially across and over a second heat sink that overlaps and that is thermally coupled to a power pod. Thus, rejection of claim 34 should be reversed. The rejection of Claims 35, 36, and 51 which depend from claim 34, should be reversed for the same reasons.

B. Claims 35 and 36

Claims 35 and 36 depend from claim 34. Claim 35 recites that the second heat sink extends completely across the first heat sink. Claim 36 recites that the second heat sink extends on opposite sides of the first heat sink.

As pointed out by Appellants in the response filed March 12, 2007, neither AAPA nor DiBene, alone or in combination, disclose or suggest the additional limitations of claims 35 and 36. In rejecting claims 35 and 36, the Examiner asserts that DiBene teaches that "the second heat sink (142) extends completely across the first heat sink (106, 126, 128, See Fig 2)." With respect to claim 36, the Examiner asserts that "DiBene et al. further teaches that the second heat sink extends on opposite sides of the first heat sink (See Fig 2).

However, the Examiner's characterization of the heat sink 142 of DiBene as the "second heat sink" of claim 35 and 36 is improper. Appellants respectfully note that claim 34, from which claims 35 and 36 depend, recites that the "first heat sink" overlaps the power pod. The only heat sink disclosed by DiBene that overlaps the

power pod 118 is heat sink 142. The other "heat sink" of DiBene, (106, 126, 128), clearly does not overlap power pod 118. Thus, heat sink 142 cannot be properly characterized as the "second heat sink" in order to reject claim 35 and 36. The only heat sink of DiBene that could be possibly characterized as the second heat sink would be "heat sink" (106, 126, 128). However, this heat sink clearly does not extend completely across heat sink 142. Nor does this heat sink extend on opposite sides of the heat sink 142.

In response to such points, the Examiner repeats the same erroneous attempt at reading heat sink 142 of DiBene in claims 35 and 36. The Examiner once again argues:

> DiBene clearly teaches a heat sink 142 which clearly extends across a first heat sink 106, 126, 128, 158) as claimed.

(Final Office Action dated April 27, 2007, page 9).

However, once again, the Examiner appears to be overlooking the additional limitations of base claim 34. Although it may be true that heat sink 142 (characterized as the second heat sink) extends across heat sink 106, 126, 128, 158 (characterized as the first heat sink), claim 35 (by way of its dependency upon claim 34) ALSO requires that the **first** heat sink overlap the power pod. As shown in Figure 1, Heat sink 106, 126, 128, 158 (characterized as the **first** heat sink) does not overlap power converter 118.

Moreover, AAPA says nothing about a first heat sink that overlaps a power pod, wherein a second heat sink overlap the first heat sink. Any hypothetical piecing together of the teachings of DiBene and AAPA in order to arrive at the processor module recited in claim 35 would appear to be based upon impermissible hindsight reasoning using Appellant's own disclosure as a blueprint as neither reference provides any suggestion for the claimed arrangement at most, such a hypothetical combination would be substantially identical to DiBene. Nothing in AAPA would lead one or more new skill in the art to modify DiBene in such a way so as to produce the processor model of claim 35. Thus, the rejection of claims 35 and 36 should be reversed for this additional reason.

C. Claim 37

Claim 37 recites a multi-device heat sink module including a power supply, a processor, a first means for dissipating heat emitted by the power supply while not substantially receiving heat from the processor and a second mean for dissipating heat emitted by the processor. The second means extends at least partially across and over the first means. In other words, the means for dissipating heat from the processor extends at least partially across and over the means for dissipating heat emitted by the power supply.

As pointed out by Appellants in the response filed March 12, 2007, neither AAPA nor DiBene, alone or in combination, disclose or suggest a second means for dissipating heat emitted by a processor that extends over a first means for dissipating heat emitted by a power supply while not substantially receiving heat from the processor. As with claim 34, the Examiner, in rejecting claim 34, seems to overlook the specific limitations of what heat sink is extending across the other heat sink. In rejecting claim 37, the Examiner asserts, "DiBene teaches the conventionality of having a heat sink (142) extend at least partially across in other heat sink (comprising 106, 126, and 128)."

However, claim 37 does **not** simply state that one heat sink extends across another heat sink. Rather, claim 37 specifically recites that the heat sink (second means for dissipating heat) that is thermally coupled to be heat transfer surface of the processor extends at least partially across and over the heat sink (first heat dissipating means) that dissipates heat emitted by the power supply while not substantially receiving heat from the processor. The heat sink of DiBene that is thermally coupled to the processor (comprising 106, 126, and 128) clearly does not extend over the heat sink 142 that dissipates heat emitted by the power supply 118.

The heat sink (comprising 106, 126, and 128) cannot be alternatively characterized as the "first means for dissipating heat" while heat sink 142 is alternatively characterized as the "second means for dissipating heat" since the heat sink (comprising 106, 126, and 128) clearly does not dissipate heat emitted by a power supply while not substantially receiving heat from the processor. Thus, rejection of claim 37 should be reversed.

As with claim 34, in response to such points, the Examiner argues:

> The Examiner respectfully notes that was never the Examiner's position that DiBene teach the heat sink/power pod, heat sink/processor relationship as alleged in remarks. Rather, the Examiner simply used the DiBene reference to teach a second heat sink extending over a first heat sink. The relationship between the heat sink/power pod, heat sink/processor is addressed by AAPA.

(Final Office Action dated April 20 7, 2007, page 9).

However, this is not true. AAPA does NOT disclose a heat sink (second means for dissipating heat) that is thermally coupled to the heat transfer surface of the processor extends at least partially across and over the heat sink (first heat dissipating means) that dissipates heat emitted by the power supply while not substantially receiving heat from the processor.. Paragraph [0002] and [0003] of the present application, relied upon by the Examiner for his incorrect assertion, recite in full:

> [0002] To cool or dissipate heat from processors and power pods, many computer systems include heat sinks positioned adjacent the processor and the power pod. Such heat sinks are generally thermally conductive and have a large surface area for dissipating heat from the processor or from the power pod.
>
> [0003] In many computer systems, adequate cooling of the processor is difficult to achieve. Achieving adequate cooling of the processor is even more problematic in those systems where multiple electronic components, such as processors and dedicated power pods are crowded next to one another within the system. For example, in many computer systems, multiple processors are placed in series so that the processors and their respective heat sinks pre-heat the air flowing to the next processor and heat sink. In an attempt to increase cooling of the processor, some computer systems utilize the common heat sink base for both the processor and the power pod. Although the common base increases cooling of the processor, it requires the usage of a different heat sink for each different implementation, increasing supply chain costs. In addition, because power pods generate much less heat as compared to the processor, this attempted solution often results in the processor actually heating the power pod. In another attempt to increase cooling of the processor, some

> computer systems utilize active heat sinks or turbo coolers which are equipped with fans. This solution increases the cost and reduces the reliability of the system.

Nowhere do these two paragraphs taken from the present application ever disclose a second heat sink (second means for dissipating heat) that is thermally coupled to be heat transfer surface of the processor and extends at least partially across and over a first heat sink (first heat dissipating means), wherein the first heat sink dissipates heat emitted by the power supply but does not substantially receive heat from the processor.. Thus, rejection of claim 37 should be reversed.

D. Claim 39

Claim 39 recites a heat dissipating arrangement including a heat sink having fins thermally coupled to a first device that overlap and extend opposite to opposite sides of a second device.

As pointed out by Appellants in the response filed March 12, 2007, neither AAPA nor DiBene, alone or in combination, disclose or suggest a heat sink having fins that overlap and extend opposite to opposite sides of a second heat emitting device. AAPA merely discloses a first heat sink coupled to a first device and a second heat sink coupled to a second device. The Examiner acknowledges that AAPA failed to disclose fins a first device overlapping and extending opposite to opposite sides of a second device. As a result, the Examiner attempts to additionally rely upon DiBene to satisfy this deficiency of AAPA. The Examiner asserts that:

> DiBene clearly teaches a heat sink 142 which extends opposite to opposite sides of the gay first heat emitting device (156) as shown in Fig 1 since the device (156) has opposite sides and the fins are extend opposite to the opposite sides in the sense that the things extend into the page (as well as vertically and horizontally)..

(Final Office Action dated April 27, 2007, Page 10).

However, heat sink 142 does not overlap and extend opposite to opposite sides of electronic device 156. As noted above with respect to the rejection of claim 39, although the Examiner may be entitled to a reasonable broadest interpretation of the claims, in this particular instance, the Examiner's interpretation is unreasonable

and does not comport with the plain meaning of the claim limitations. Accordingly, the rejection of claim 39 based upon AAPA and DiBene should be withdrawn. Claim 40 depends from claim 39 and overcomes the rejection for the same reasons.

E. Claim 40

Claim 40 depends from claim 39. Claim 40, as amended, further recites a second heat sink thermally coupled to a second device, wherein the first heat sink extend opposite to opposite sides of the second heat sink.

As pointed out by Appellants in the response filed March 12, 2007, neither AAPA nor DiBene, alone or in combination, additionally disclose a second heat sink, wherein the first heat sink extends opposite to opposite sides of the second heat sink. Neither heat sink 142 nor heat sink (106, 126, and 128) of DiBene extend opposite to opposite sides of the other. Accordingly, claim 40, as amended, overcomes the rejection based upon AAPA and DiBene for this additional reason. The rejection of Claim 53, which depends from claim 40, should be reversed for the same reasons.

F. Claim 54

Claim 54 depend from claim 41 and recites that the second heat sink has fins and wherein the at least one heat dissipating structure having fins is configured to extend (1) at least partially around and (2) opposite to opposite sides of the fins of the second heat sink.

Neither DiBene nor AAPA, alone or in combination, disclose a heat dissipating structure (heatsink) having fins that is configured to extend (1) at least partially around and (2) opposite to opposite sides of the fins of the second heat sink. In rejecting claim 54, the Examiner refers to heatsink 142 and asserts that heatsink 142 extends at least partially around and opposite to opposite sides of the "fins" of area 158.

However, this is not true. As noted above with respect to the rejection of claim 39, heatsink 142 does not extend opposite to opposite side area 158 a rather extends over and across area 158.

Moreover, regardless of the accuracy of the Examiner's construction of the limitation "opposite to opposite sides", it is clear that heatsink 142 does **not** extend around the "fins" of area 158. Accordingly, the rejection of claim 54 and should be reversed for this additional reason.

Conclusion

In view of the foregoing, the Appellants submit that Claims 39 and 40 are not properly rejected under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 5,396,403 (Patel) and are therefore patentable. Claims 41 and 42 are not properly rejected under 35 U.S.C. § 102(b) as being as being anticipated by U.S. Patent No. 6,356,448 (DiBene) and are therefore patentable. Claims 34-37, 39-40, 51 and 53-54 are not properly rejected under under 35 U.S.C. § 103(a) as being unpatentable over Applicants Admitted Prior Art (AAPA) in view of U.S. Patent No. 6,356,448 (DiBene) and are therefore patentable. Accordingly, Appellants respectfully request that the Board reverse all claim rejections and indicate that a Notice of Allowance respecting all pending claims should be issued.

Summary

For the foregoing, it is submitted that the Examiner's rejections are erroneous, and reversal of the rejections is respectfully requested.

Dated this 25th day of September, 2007.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Previously Presented) A computing system comprising:

a circuit board;

a first device having a first heat transfer surface;

a first heat sink including:

a first base thermally coupled to the first heat transfer surface; and

a first array of fins thermally coupled to the first base so as to extend away from the first base in a first direction, wherein the first array of fins includes consecutive fins forming a transverse channel therebetween extending in a second direction perpendicular to the first direction and having opposite transverse open ends;

a second device coupled to the circuit board, the second device having a second heat transfer surface; and

a second heat sink including:

a second base thermally coupled to the second heat transfer surface; and

a second array of fins coupled to the second base and extending at least partially across and over the first array of fins, wherein the first heat sink is sandwiched between the first device and the second heat sink.

2. (Original) The system of Claim 1, wherein the first device is electrically connected to the second device.

3. (Previously Presented) The system of Claim 1, wherein the first array of fins overlaps the first device and wherein the first device generates heat at a first rate and wherein the second device generates heat at a second greater rate.

4. (Canceled)

5. (Previously Presented) The system of Claim1, wherein the first device comprises a power pod assembly.

6. (Original) The system of Claim 5, wherein the power pod assembly is dedicated solely to supplying power to the processor assembly.

7. (Previously Presented) The system of Claim 1, wherein the first array of fins extends over the first base which overlaps the first device and wherein the first device comprises a power pod assembly.

8. (Previously Presented) The system of Claim 1, wherein the second array of fins overlaps opposite sides of the first device.

9. (Original) The system of Claim 1, wherein the second heat sink includes a heat pipe extending at least partially across the first array of fins.

10. (Original) The system of Claim 9, wherein the heat pipe supports the second array of fins over the first array of fins.

11. (Original) The system of Claim 9, wherein the heat pipe extends at least partially along the second base.

12. (Original) The system of Claim 9, wherein the heat pipe extends from below the first base to above the first array of fins.

13. (Original) The system of Claim 1, wherein the first device and the second device are coupled to one another to form a multi-device module adapted to be connected to the circuit board.

14. (Canceled)

15. (Previously Presented) The system of Claim 1 including a central electronic control coupled to the circuit board.

16. (Previously Presented) The system of Claim 1 including:

a baseboard coupled to the circuit board;

a memory device coupled to the baseboard; and

an input/output device coupled to the baseboard.

17. (Previously Presented) The system of Claim 1 including a fan configured to create an air flow across the second device and across the fourth device.

18. (Original) The system of Claim 1, wherein at least one of the first array of fins is interleaved with the second array of fins.

19. (Previously Presented) A multi-device heat sink module adapted to be connected to a circuit board, the module comprising:

a first device having a first heat transfer surface;

a first heat sink having a first base thermally coupled to the first heat transfer surface, wherein the first heat sink includes a first array of fins thermally coupled to the first base;

a second device coupled to the first device and having a second heat transfer surface;

a second heat sink having a second base thermally coupled to the second heat transfer surface, wherein the second heat sink includes a second array of fins, wherein the second array of fins extends at least partially across the first array of fins, wherein the second heat sink includes a heat pipe extending at least partially across the first array of fins from below the first base to above the first array of fins; and

a connector connected to one of the first device and the second device and configured to be electrically connected to the circuit board, wherein at least a portion of the second heat sink extends at least partially across the first heat sink.

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Previously Presented) The module of Claim 19, wherein the second array of fins overlaps opposite sides of the first array of fins.

24. (Canceled)

25. (Previously Presented) The module of Claim 19, wherein the heat pipe extends at least partially along the second base.

26. (Canceled)

27. (Original) The module of Claim 19, wherein the first device is electrically connected to the second device.

28. (Original) The module of Claim 19, wherein the first device generates heat at a first rate and wherein the second device generates heat at a second greater rate.

29. (Original) The module of Claim 19, wherein the second device comprises a processor assembly including a central processing unit.

30. (Original) The module of Claim 29, wherein the first device comprises a power pod assembly.

31. (Original) The module of Claim 30, wherein the power pod assembly is dedicated solely to supplying power to the processor assembly.

32. (Original) The module of Claim 19, wherein the first device comprises a power pod assembly.

33. (Previously Presented) The module of Claim 19 , wherein the second heat sink includes:

a heat pipe extending above the first heat sink; and

an array of fins thermally coupled to the heat pipe and supported by the heat pipe above the first heat sink.

34. (Previously Presented) A processor module comprising:

a processor configured to be connected to a circuit board, the processor having a first heat transfer surface;

a power pod electrically connected to the processor to supply power to the processor, the power pod having a second heat transfer surface;

a first heat sink overlapping the power pod and thermally coupled to the second heat transfer surface; and

a second heat sink thermally coupled to the first heat transfer surface, wherein the second heat sink extends at least partially across and over the first heat sink.

35. (Original) The module of Claim 34, wherein the second heat sink extends completely across the first heat sink.

36. (Original) The module of Claim 35, wherein the second heat sink extends on opposite sides of the first heat sink.

37. (Previously Presented) A multi-device heat sink module for being connected to a circuit board, the module comprising:

a power supply;

a processor;

a first means for dissipating heat emitted by the power supply while not substantially receiving heat from the processor; and

a second means for dissipating heat emitted by the processor, wherein the second means extends at least partially across and over the first means.

38. (Canceled)

39. (Previously Presented) A heat dissipating arrangement comprising:

a first heat emitting device;

a second heat emitting device; and

a first heat sink having fins thermally coupled to the first device, wherein the fins of the first heat sink overlap and extend opposite to opposite sides of the second device.

40. (Previously Presented) The arrangement of Claim 39 including a second heat sink thermally coupled to the second device, wherein the fins of the first heat sink extends opposite to opposite sides of the second heat sink.

41. (Previously Presented) A first heat sink for use with a first heat emitting device, a second heat emitting device and a second heat sink thermally coupled to the second heat emitting device, the first heat sink comprising:

at least one heat dissipating structure having fins configured to be thermally coupled to the first heat emitting device while extending at least partially around and opposite to opposite sides of the second heat sink.

42. (Previously Presented) A first heat sink for use with a first heat emitting device, a second heat emitting device, and a second heat sink thermally coupled to the second heat emitting device and having a plurality of fins, the first heat sink comprising:

at least one heat dissipating structure configured to be thermally coupled to the first heat emitting device while extending at least partially around and opposite to opposite sides of the plurality of fins of the second heat sink.

43. (Previously Presented) A method for dissipating heat from a first electronic device positioned proximate a second electronic device, the method comprising:

directing heat generated by the first device through a first array of fins extending across and around at least a portion of the second device so as to dissipate heat on opposite sides of the portion of the second device, wherein the second device includes a second array of fins and wherein the method further includes nesting the second array of fins within the first array of fins.

44. (Canceled)

45. (Canceled)

46. (Previously Presented) The system of claim 1, wherein the first base is horizontally spaced from and beside the second base.

47. (Previously Presented) A computing system comprising:

a circuit board;

a first device having a first heat transfer surface;

a first heat sink including:

a first base thermally coupled to the first heat transfer surface; and

a first array of fins thermally coupled to the first base;

a second device coupled to the circuit board, the second device having a second heat transfer surface; and

a second heat sink including:

a second base thermally coupled to the second heat transfer surface; and

a second array of fins coupled to the second base and extending at least partially across the first array of fins, wherein at least one of the first array of fins is interleaved with the second array of fins.

48. (Canceled)

49. (Previously Presented) The system of claim 1, wherein the second array of fins extend away from the second base in the first direction, wherein the second array of fins includes consecutive fins forming a transverse channel therebetween extending in a third direction perpendicular to the first direction and having opposite transverse open ends.

50. (Previously Presented) The system of claim 49, wherein the second heat sink extends at least partially across and over the first array of fins in a fourth direction perpendicular to the second direction and the third direction.

51. (Previously Presented) The processor module of claim 34, wherein the first heat sink is sandwiched between the processor and the second heat sink.

52. (Previously Presented) The module of claim 37, wherein the first means for dissipating heat is sandwiched between the second means for dissipating heat and the power supply.

53. (Previously Presented) The arrangement of claim 40, wherein the second heat sink is sandwiched between the first heat sink and the second heat emitting device.

54. (Previously Presented) The first heat sink of claim 41, wherein the second heat sink has fins and wherein the at least one heat dissipating structure having fins is configured to extend at least partially around and opposite to opposite sides of the fins of the second heat sink.

55. (Canceled)

56. (Previously Presented) The module of claim 34, wherein the second heat sink includes:

a first base thermally coupled to the second heat transfer surface; and

a first array of fins thermally coupled to the first base so as to extend away from the first base in a first direction, wherein the first array of fins includes consecutive fins forming a transverse channel therebetween extending in a second direction perpendicular to the first direction and having opposite transverse open ends; and

wherein the first heat sink includes:

a second base thermally coupled to the first heat transfer surface; and

a second array of fins coupled to the second base, wherein the second array of fins extend away from the second base in the first direction, wherein the second array of fins includes consecutive fins forming a transverse channel therebetween extending in a third direction perpendicular to the first direction and having opposite transverse open ends.

57. (Previously Presented) A multi-device heat sink module adapted to be connected to a circuit board, the module comprising:

a first device having a first heat transfer surface;

a first heat sink including:

a first base thermally coupled to the first heat transfer surface; and

a first array of fins thermally coupled to the first base so as to extend away from the first base in a first direction, wherein the first array of fins includes consecutive fins forming a transverse channel therebetween extending in a second

direction perpendicular to the first direction and having opposite transverse open ends;

a second device coupled to the circuit board, the second device having a second heat transfer surface; and

a second heat sink including:

a second base thermally coupled to the second heat transfer surface; and

a second array of fins coupled to the second base and extending at least partially across and over the first array of fins, wherein the first base is horizontally spaced from and beside the second base.

EVIDENCE APPENDIX

There is no evidence previously submitted under 37 C.F.R. §§ 1.130, 1.131 or 1.132 or other evidence entered by the Examiner and relied upon by Appellant in this appeal. Accordingly, the requirements of 37 C.F.R. §§ 41.37(c)(1)(ix) are satisfied.

RELATED PROCEEDINGS APPENDIX

There are no decisions rendered by a Court of the Board in a proceeding identified in the Related Appeals and Interferences section. Accordingly, the requirements of 37 C.F.R. §§ 41.37(c)(1)(x) are satisfied.